

Remarks

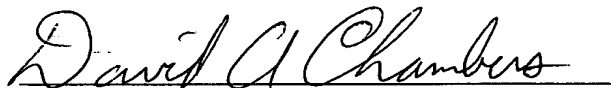
By this amendment, claims 14-38 have been cancelled and claims 39-61 have been added. The claims remaining in consideration are claims 1-13 and 39-61; the independent claim is claim 1.

As an aid to the Examiner, the preceding clean version of the claims shows all the claims in the application, including the claims not amended hereby.

The Examiner has required the Applicant to elect one invention. The Applicant elects the apparatus as defined by claims 1-13 and the dependent claims added by this amendment. The Applicant has added new claims 39-61. Support for claim 39 is provided in the specification on page 6, line 12. Claims 40 and 41 are supported by the specification on page 4, lines 16-17. The specification on page 6, lines 20-22 supports claims 42-44. Claims 45-61 are supported by cancelled claims 23-38. No new matter has been added by this amendment.

The application as amended is believed to be in condition for allowance, and an early notice of allowance is solicited.

Respectfully submitted,



David A. Chambers, Reg. No. 50,788
Husch & Eppenger, LLC
401 Main Street, Suite 1400
Peoria, Illinois 61602
(309) 637-4900



Version With Markings to Show Changes Made

Following is a marked-up version of the claims with all changes shown by conventional comparison (underlining and bracketing):

In the Title

Molding Made From Polyurethane [and Process for its Production]

In the Claims

[14. A mold casting process for producing a molding that includes polyurethane, comprising the steps of:

producing a reaction mixture of polyurethane gel composition and a foamable polyurethane; and

joining, during foaming and curing, said reaction mixture of said polyurethane gel composition and said foamable polyurethane.]

[15. A process according to claim 14, wherein said reaction mixture is cast onto a covering layer.]

[16. A process according to claim 15, wherein said covering layer includes a film.]

[17. A process according to claim 14, wherein said covering layer is placed on said reaction mixture.]

[18. A process according to claim 14, including the steps of:
introducing a freshly produced mixture of polyol and polyisocyanate as a gel composition into a mold lined with a covering layer;

applying a polyurethane raw material mixture to said gel composition for production of foam; and
maintaining conditions for foaming and curing of said foam in said mold.]

[19. A process according to claim 14, including the steps of:
introducing a pre-formed gel layer into said mold wherein said mold is lined with a covering layer;
applying a polyurethane raw material mixture for production of foam; and
maintaining conditions for foaming and curing of said foam.]

[20. A process according to claim 19, wherein said pre-formed gel layer is placed on a base of said mold.]

[21. A process according to claim 19, wherein said pre-formed gel layer is attached to a lid of said mold.]

[22. A process according to claim 14, including the steps of:
placing a pre-formed foam block in said mold;
filling said mold with a gel composition; and
maintaining reaction conditions for producing said polyurethane gel from said gel composition.]

[23. A process according to claim 22, wherein said gel composition is produced using raw materials of an isocyanate functionality and a functionality of said polyol component of at least 5.2.]

[24. A process according to claim 22, wherein said gel composition is produced using raw materials of an isocyanate functionality and a functionality of said polyol component of at least 6.5.]

[25. A process according to claim 22, wherein said gel composition is produced using raw materials of an isocyanate functionality and a functionality of said polyol component of at least 7.5.]

[26. A process according to one of claims 22, wherein said polyol component for producing said gel includes a mixture of:

one or more polyols having hydroxyl numbers below 112;

one or more polyols having hydroxyl numbers in a range 112 to 600, wherein a weight ratio of said one or more polyols having hydroxyl numbers below 112 to said one or more polyols having hydroxyl numbers in a range 112 to 600 lies between 90:10 and 10:90;

a isocyanate characteristic of said reaction mixture lies in a range from 15 to 59.81; and

a product of isocyanate functionality and functionality of said polyol component is at least 6.15.]

[27. A process according to claim 22, wherein raw materials for producing said gel include:

one or more polyisocyanates;

a first polyol component including one or more polyols having hydroxyl numbers below 112;

a second polyol component that includes one or more polyols having hydroxyl numbers in a range 112 to 600;

wherein a weight ratio of said first polyol component to said second polyol component lies between 90:10 and 10:90, an isocyanate characteristic of said reaction mixture lies in a range from 15 to 59.81, and a product of isocyanate functionality of said first polyol component and said second polyol component is at least 6.15.]

[28. A process according to claim 27, further including a catalyst for said reaction between isocyanate and hydroxyl groups.]

[29. A process according to claim 27, further including fillers utilized with polyurethane.]

[30. A process according to claim 27, wherein said polyol component for producing said gel includes one or more polyols having a molecular weight between 1,000 and 12,000 and an OH number between 20 and 112, and a product of functionalities of said polyurethane-forming components is at least 5.2, and said isocyanate characteristic lies between 15 and 60.]

[31. A process according to claim 30, wherein isocyanates for gel production those of formula:



are used, where n represents 2 to 4 and Q denotes an aliphatic hydrocarbon radical having 8 to 18 C atoms, a cycloaliphatic hydrocarbon radical having 4 to 15 C atoms.]

[32. A process according to claim 30, wherein isocyanates for gel production those of formula



are used, where n represents 2 to 4 and Q denotes an aromatic hydrocarbon radical having 6 to 15 atoms.]

[33. A process according to claim 30, wherein isocyanates for gel production those of formula



are used, where n represents 2 to 4 and Q denotes an araliphatic hydrocarbon radical having 8 to 15 C atoms.]

[34. A process according to claim 31, wherein said isocyanates are used in pure form.]

[35. A process according to claim 31, wherein said isocyanates are used in a form of conventional isocyanate modifications.]

[36. A process according to claim 35, wherein said conventional isocyanate modifications include urethanisation.]

[37. A process according to claim 36, wherein said conventional isocyanate modifications include allophantisation.]

[38. A process according to claim 36, wherein said conventional isocyanate modifications include biuretisation.]

39. (New) A molding according to claim 2, wherein the outer covering layer is pre-formed in a mold.

40. (New) A molding according to claim 4, wherein the polyurethane foam layer is in direct contact with the outer covering layer.

41. (New) A molding according to claim 4, wherein the polyurethane gel layer is in direct contact with the outer covering layer.

42. (New) A molding according to claim 1, wherein the polyurethane gel is pre-formed.

43. (New) A molding according to claim 4, wherein the polyurethane gel layer is pre-formed.

44. (New) A molding according to claim 4, wherein the polyurethane gel layer is in pre-formed sections.

45. (New) A molding according to claim 1, wherein the polyurethane gel is produced from raw materials having an isocyanate functionality and a polyol component having a functionality of at least 5.2.

46. (New) A molding according to claim 1, wherein the polyurethane gel is produced from raw materials having an isocyanate functionality and a polyol component having a functionality of at least 6.5.

47. (New) A molding according to claim 1, wherein the polyurethane gel is produced from raw materials having an isocyanate functionality and a polyol component having a functionality of at least 7.5.

48. (New) A molding according to claim 1, wherein the polyurethane gel is produced by a reaction mixture of an isocyanate functionality and a polyol component having a mixture of:

one or more polyols having hydroxyl numbers below 112;

one or more polyols having hydroxyl numbers in a range 112 to 600, wherein a weight ratio of the one or more polyols having hydroxyl numbers below 112 to the one or more polyols having hydroxyl numbers in a range 112 to 600 lies between 90:10 and 10:90;

the isocyanate characteristic of the reaction mixture lies in a range from 15 to 59.81; and

the product of isocyanate functionality and functionality of the polyol component is at least 6.15.

49. (New) A molding according to claim 1, wherein the polyurethane gel includes a reaction mixture of:

one or more polyisocyanates;

a first polyol component including one or more polyols having hydroxyl numbers below 112; and

a second polyol component that includes one or more polyols having hydroxyl numbers in a range 112 to 600; wherein a weight ratio of said first polyol component to said second polyol component lies between 90:10 and 10:90, an isocyanate characteristic of said reaction mixture lies in a range from 15 to 59.81, and a product of isocyanate functionality of said first polyol component and said second polyol component is at least 6.15.

50. (New) A molding according to claim 49, wherein the reaction mixture further includes a catalyst.

51. (New) A molding according to claim 49, wherein the reaction mixture includes fillers.

52. (New) A molding according to claim 49, wherein the second polyol component for producing the polyurethane gel includes one or more polyols having a molecular weight between 1000 and 12000 and an OH number between 20 and 112, wherein the product of the functionalities of the polyurethane-forming components is at least 5.2, and the isocyanate characteristic lies between 15 and 60.

53. (New) A molding according to claim 52, wherein the isocyanates for producing the polyurethane gel are of the formula



where n represents 2 to 4 and Q denotes an aliphatic hydrocarbon radical having 6 to 18 C atoms.

54. (New) A molding according to claim 52, wherein the isocyanates for producing the polyurethane gel are of the formula



where n represents 2 to 4 and Q denotes an cycloaliphatic hydrocarbon radical having 4 to 15 C atoms.

55. (New) A molding according to claim 52, wherein the isocyanates for producing the polyurethane gel are of the formula



where n represents 2 to 4 and Q denotes an aromatic hydrocarbon radical having 6 to 15 C atoms.

56. (New) A molding according to claim 52, wherein the isocyanates for producing the polyurethane gel are of the formula



where n represents 2 to 4 and Q denotes an araliphatic hydrocarbon radical having 8 to 15 C atoms.

57. (New) A molding according to claim 53, wherein the isocyanates for producing the polyurethane gel are in pure form.

58. (New) A molding according to claim 53, wherein the isocyanates for producing the polyurethane gel have conventional isocyanate modifications.

59. (New) A molding according to claim 58, wherein the conventional isocyanate modification includes urethanisation.

60. (New) A molding according to claim 58, wherein the conventional isocyanate modification includes allophantisiation.

61. (New) A molding according to claim 58, wherein the conventional isocyanate modification includes biuretisation.